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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,918	08/02/2001	Allison H. Sampson	P66732US0	3989

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EXAMINER
NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,918	SAMPSON ET AL.	
	Examiner	Art Unit	
	Ngoc-Yen M. Nguyen	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-12 and 16-51* is/are pending in the application.

4a) Of the above claim(s) *28-41* is/are withdrawn from consideration.

5)☒ Claim(s) *6-12,16-27,44-46,48 and 50* is/are allowed.

6)☒ Claim(s) *2-5,42,43,47,49 and 51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

This is a supplemental Final Office Action to the previous Office Action (mailed July 13, 2005). In view of the telephone interview with Mr. Contrera, the restriction requirement in the previous office is withdrawn.

Claims 2-27 and 42-51 are examined on the merit in this Office Action.

The amendment filed August 8, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "Those skilled in the art..., such as in an electrolytic reactor".

Applicant is required to cancel the new matter in the reply to this Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5, 47, 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants are requested to point out support in the instant application, as originally filed, by page and line numbers, for the limitation of "in the absence of an anion exchange material" as required in the instant claims 2, 4; for the limitation "has a pH in the range of about 1.9 to about 2.9" as required in the instant claim 47; for the limitation of "said cation exchange material is selected from the group consisting of ... or any combination of the foregoing" as required in the instant claim 49. It is noted that on page 13, lines 3-12, ion exchange materials, which can be membranes, powders, etc. and can be weak acid, strong acid, strong base or weak base ion exchange material, are disclosed, however these materials are for removing unwanted ions from the precursor, not for the cation for contacting with chlorite salt precursor.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "essentially pure" in claim 51 is a relative term which renders the claim indefinite. The term "essentially pure" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In the

specification, there is no disclosure for the purity of the chlorous acid formed by the claimed method.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Callerame (3,684,437).

Callerame '437 discloses a process for producing chlorous acid by ion exchange between a mixed cation-anion exchange resin and a aqueous chlorite solution (i.e., moist environment) of an alkali metal or an alkaline earth metal (note claim 1).

The cation exchange resin has its active sites occupied by hydrogen (note column 2, lines 1-7.

In Example 9, only cation exchange resin was used to contact with a sodium chlorite solution. Chlorous acid is formed (note the ClO_2^- amount).

Since the additive as required in the instant claim 3 can be a cation exchange material (both strong and weak acid), the cation exchange resin in Callerame '437 is considered as both the required cation exchange material and the required additive.

The process of Callerame '437 anticipates the claimed process.

Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Callerame (3,828,097).

Callerame '097 discloses a process of preparing chlorous acid by flowing an aqueous solution (i.e., "moist" environment) of a metal chlorate and a nitrite through a cation exchange resin, the active sites of which are occupied by hydrogen (note claim 1).

The nitrite is considered as the claimed "additive".

The process or Callerame '097 anticipates the claimed process.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-3, 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Callerame '437.

Callerame '437 teaches that in the absence of the anion exchange resin, a poor yield is obtained and the resulting chlorous acid solution is not pure and rapidly deteriorates (note column 2, lines 13-16).

Thus, it would have been obvious to one of ordinary skill in the art to eliminate the use of the anion exchange resin along with its attended function. In re Wilson 153 USPQ 740 (CCPA 1967).

Since the process of Callerame '437 has all the positive limitations as in the claimed process, the chlorous acid product of Callerame '437 would inherently be as "essentially pure" as the product of claimed process.

Claims 2-3, 42, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callerame '437 in view of Kross et al (5,100,652).

The difference not yet discussed is Callerame '437 does not teach the step of contacting chlorous acid with a catalytic material to form chlorine dioxide.

Kross '652 discloses that vicinal dihydroxy or polyhydroxy compound catalyzes the formation of chlorine dioxide from chlorous acid (note column 5, lines 47-53).

It would have been obvious to one of ordinary skill in the art to use vicinal dihydroxy or polyhydroxy compound as catalytic material to form chlorine dioxide from chlorous acid of Callerame '437 as suggested by Kross '652 because chlorine dioxide formed by such method can be used as oral disinfectants which do not have the strong unpleasant taste of chlorine (note abstract of Kross '652).

Claims 4-5, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callerame '097 in view of Kross et al (5,100,652).

The difference not yet discussed is Callerame '097 does not teach the step of contacting chlorous acid with a catalytic material to form chlorine dioxide.

Kross '652 is applied as stated above. It would have been obvious to one of ordinary skill in the art to use vicinal dihydroxy or polyhydroxy compound as catalytic

material to form chlorine dioxide from chlorous acid of Callerame '437 as suggested by Kross '652 because chlorine dioxide formed by such method can be used as oral disinfectants which do not have the strong unpleasant taste of chlorine (note abstract of Kross '652).

Claims 6-12, 16-27, 44-46, 48, 50 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest a process for producing chlorous acid by contacting a chlorate with an anion exchange material or a process for producing chlorous acid and chlorine dioxide together by using a chlorate or a chlorite and a cation or an anion exchange material.

Applicant's arguments filed April 8, 2005 have been fully considered but they are not persuasive.

Applicants argue that Callerame '437 incorrectly states that chlorine dioxide absorbed in water forms chlorous acid.

Regardless of how the chlorous acid was formed, Callerame '437 still fairly discloses that chlorous acid is produced.

Applicants argue that Callerame '437 requires sodium chlorite must be passed through both cation and anion resin.

As stated in the 102 rejection above, Callerame '437 discloses in Example 9 a process for producing chlorous acid using only cation exchange resin. Moreover, as

stated in the 103 rejection, Callerame '437 teaches that the anion exchange resin is used to increase yield and to purify, thus, it would have been obvious to delete the use of the anion exchange resin in the process of Callerame '437 along with its functions.

Applicants argue that Applicants' invention will not work if both cation and anion exchange resins were used together.

In Applicants' claims, the cation resin as required in Applicants' claim 10 can be used in combination with an additive, and as disclosed in Applicants' specification, ion exchange material can be used to remove unwanted ions from the precursor and the such ion exchange material can be weak base or strong base ion exchange material. Thus, Applicants' specification clearly teaches that the claimed process can be carried in the presence of both the cation and the anion exchange materials, which contradicts with Applicants' argument above.

Applicants argue that the pH in Callerame '437 is high.

No pH requirement in Applicants' claims, which were rejected over Callerame '437.

Applicants argue that Callerame '097 requires a reducing agent.

Such reducing agent is not excluded by Applicants' claims.

Applicants argue that the process for making chlorous acid in the claimed invention is different than that of Kross '652.

Granted that Kross '652 does not disclose the same method for producing chlorous acid, however, it would have been obvious to one of ordinary skill in the art to use the product of a known process as starting material for another process, In re

Kamlet 88 USPQ 106, i.e. it would have been obvious to one skilled in the art to use the chlorous acid produced by Callerame '097 or Callerame '437 for the composition of Kross '652, wherein the chlorous acid in the composition would be catalyzed by the vicinal dihydroxy or polyhydroxy compound to form chlorine dioxide.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn
August 3, 2005